WHAT IS CLAIMED IS:

1. A gas compressor comprising:

a suction port for taking in a gas from outside;

a suction chamber communicating with the suction port;

a gas compressing portion communicating with the suction chamber;

a compressed gas releasing portion provided in the gas compressing portion;

a discharge chamber communicating with the compressed gas releasing portion;

a discharge port communicating with the discharge chamber and adapted to discharge a compressed gas to outside; and

a filter dividing a discharge chamber space into a compressed gas releasing portion side space and a discharge port side space, wherein the filter is installed with an outer peripheral portion thereof being situated in a peripheral installation portion between the compressed gas releasing portion side space and the discharge port side space and is configured such that the outer peripheral portion of the filter is expanded peripherally upon its deformation caused when a force (dynamic pressure) of a jet stream due to a flow of the compressed gas released from the compressed gas releasing portion and a force (static pressure) due to a difference in pressure between front and rear sides of the filter which is generated by a flow path resistance in the filter are applied thereto, thereby

increasing a force with which the filter is held in close contact with the installation portion.

2. A gas compressor according to Claim 1, wherein the gas compressing portion is equipped with a cylinder, side blocks situated at axial ends of the cylinder, a rotor rotatably arranged in the cylinder, and vanes provided in the rotor so as to be radially retractable, and wherein the oil used in the gas compressing portion exhibits a kinematic viscosity in a range of 60 to 350 mm^2/s at 40°C and 13 to 25 mm^2/s at 100°C.

3. A gas compressor comprising:

a suction port for taking in a gas from outside;

a suction chamber communicating with the suction port;

a gas compressing portion communicating with the suction chamber;

a compressed gas releasing portion provided in the gas compressing portion;

a discharge chamber communicating with the compressed gas releasing portion;

a discharge port communicating with the discharge chamber and adapted to discharge a compressed gas to outside; and

a filter arranged in the discharge chamber so as to extend in a direction crossing the direction in which the compressed gas

is released from the compressed gas releasing portion and dividing a discharge chamber space into a compressed gas releasing portion side space and a discharge port side space, wherein both front and back sides of the filter are convex on the compressed gas inflow side.

4. A gas compressor according to Claim 3, wherein an apex of the convex portion of the filter is situated at a position where the compressed gas released from the compressed gas releasing portion strikes.

5. A gas compressor according to Claim 3, wherein the gas compressing portion is equipped with a cylinder, side blocks situated at axial ends of the cylinder, a rotor rotatably arranged in the cylinder, and vanes provided in the rotor so as to be radially retractable, and wherein the oil used in the gas compressing portion exhibits a kinematic viscosity in a range of 60 to 350 mm^2/s at 40°C and 13 to 25 mm^2/s at 100°C.

6. A gas compressor comprising:

a suction port for taking in a gas from outside;

a suction chamber communicating with the suction port;

a gas compressing portion communicating with the suction chamber;

a compressed gas releasing portion provided in the gas compressing portion;

a discharge chamber communicating with the compressed gas releasing portion; a discharge port communicating with the discharge chamber and adapted to discharge a compressed gas to outside;

a cylindrical body extending in the discharge chamber so as to surround the compressed gas releasing portion to define an inner space in the discharge chamber; and

a filter arranged so as to cover an opening of the cylindrical body.

7. A gas compressor according to Claim 6, wherein both the front and back sides of the filter are convex on the compressed gas inflow side.

8. A gas compressor according to Claim 6, further comprising an oil sump provided in a lower portion of the discharge chamber, and an oil intake port for supplying oil accumulated in the oil sump to the interior of the gas compressing portion, wherein the oil intake port is situated outside the cylindrical body.

9. A gas compressor according to Claim 6, wherein the cylindrical body has a tapered configuration gradually diminishing in sectional area from the compressed gas releasing portion toward

the side where the filter is arranged.

10. A gas compressor according to Claim 6, wherein the gas compressing portion is equipped with a cylinder, side blocks situated at axial ends of the cylinder, a rotor rotatably arranged in the cylinder, and vanes provided in the rotor so as to be radially retractable, and wherein the oil used in the gas compressing portion exhibits a kinematic viscosity in a range of 60 to 350 mm^2/s at 40°C and 13 to 25 mm^2/s at 100°C.